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AUTHORITY

AGO ltr, 29 Apr 1980

DEPARTMENT OF THE ARMY
OFFICE OF THE ADJUTANT GENERAL
WASHINGTON, D.C. 20310

IN REPLY REFER TO
AGAM-P (M) (13 May 68) FOR OT RD 681089 15 May 1968

SUBJECT: Operational Report - Lessons Learned, Headquarters, US Army Engineer Command Vietnam (Prov), Period Ending 31 January 1968 (U)

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2. Information contained in this report is provided to insure appropriate benefits in the future from lessons learned during current operations and may be adapted for use in developing training material.

BY ORDER OF THE SECRETARY OF THE ARMY:

Kenneth G. Wickham

KENNETH G. WICKHAM
Major General, USA
The Adjutant General

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DEPARTMENT OF THE ARMY
UNITED STATES ARMY ENGINEER COMMAND VIETNAM (PROV)
APO San Francisco 96491

AVCC-P&O 30 March 1968

SUBJECT: Operational Report-Lessons Learned (RCS CSFOR-65) for Quarterly Period Ending 31 January 1968

THRU: Commanding General
United States Army, Vietnam
ATTN: AVHGC-DH
APO 96375

Commander in Chief
United States Army, Pacific
ATTN: GPOP-OT
APO 96558

TO: Assistant Chief of Staff for Force Development
Department of the Army (ACSFOR DA)
Washington, D. C. 20310

Section 1, Significant Organization or Unit Activities.

1. Command.

a. Organizational Structure. (see Incl 1) No additional units arrived in country during this period; however one Float Bridge Company was deactivated, resulting in a net reduction of one unit and 225 spaces.

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b, Key staff changes include the following:

POSITIONS		DATE
AC/S Engr	COL Groves replaced COL Jones	11 Jan 68
AC/S P&O	COL Jansen replaced LTC Barker	16 Jan 68
AC/S Engr	COL Reed replaced COL Groves	28 Jan 68
Dep Comdr	COL Sawyer replaced COL Grygiel	3 Jan 68
AC/S P&O	LTC Barker replaced COL Mc Guiness	12 Dec 68
Dep AC/S Engr	LTC Clement replaced LTC Dorman	10 Jan 68
Dep AC/S Engr	LTC Dorman replaced LTC Carter	15 Dec 67
AC/S S&M	LTC Pearce replaced COL Corder	12 Jan 68
Dep AC/S Const	LTC Richmond replaced LTC Broadwater	19 Dec 67
AC/S Const	LTC Richmond replaced COL Reed	28 Jan 68
IO	LTC Von Doran departed, no replacement	2 Nov 67
SJA	MAJ Poydasheff replaced LTC Metcalf	19 Jan 68
AG	MAJ Prevost replaced LTC Bressant	12 Nov 68

c. Major visitors to the Command were as follows:

NAME	DATE	POSITION
Rep. Cederberg	20 Jan 68	R-Mich (Sub-Committee-Mil Const)
Rep. Talcott	20 Jan 68	R-Calif (Sub-Committee-Mil Const)
GEN Johnson	31 Dec 67	Chief of Staff, US Army
BG Coats	30 Dec 67	Chief of Public Information, OSA and Chief of Information-OCofSA

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NAME	DATE	POSITION
BG Dalrymple	2-6 Dec 67	Director of Installations, DCS Log, DA
Mr. Cook	3 Dec 67	Council for the House Armed Services Committee

d. Awards during this period:

UNIT	DSC	DSM	SS	LM	DFC	SM	BSM	AM	ACM	PH	TOTAL
HQ USAECV(P)				2			29		25		56
HQ 18th Bde							5	4	24		33
35th GP	1		1			3	39	22	85	12	163
45th GP			3			2	69	26	129	16	245
937th GP			4				41	37	56	9	147
HQ 20th Bde							7		1		8
34th GP	1		1	1		1	59	1	66	11	141
79th GP			1				41	4	47	68	161
159th GP				1			55	2	94	4	157
TOTAL USAECV(P)	2		10	4		7	345	96	527	120	1111

2. Personnel, Administration, Morale and Discipline.

a. Personnel

(1) The authorized and assigned strength of HQ, USAECV(P) at the beginning and ending of the quarter was as follows:

	MTOE			TOE			ASG		
	OFF	WO	EM	OFF	WO	EM	OFF	WO	EM
1 Nov 67	103	3	169	36	5	84	114	7	265
31 Jan 68	103	3	169	36	5	84	109	6	221

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(2) Enlisted shortage throughout the command:

00B	Diver	51K	Plumber
12B	Combat Engineer	52F	Electrician
51C	Structures Specialist	62A	Engineer Equipment Assistant
51H	Construction Foreman	63A	Mechanical Maintenance Apprentice

b. Staff Judge Advocate Activities for the period 1 November through 31 January 1968 are as follows:

(1) General Courts-Martial:

a. Number referred but not tried:	0
b. Number tried:	3
c. Number tried but not forwarded for appellate review	1
d. Number forwarded for appellate review	5

(2) Inferior Courts-Martial:

a. Number of special courts-martial received for supervisory review	147
b. Number of summary courts-martial received for supervisory review	36

(3) Number of courts-martial involving:

a. Currency manipulation	0
b. Black-Market activities	2
c. Narcotics	8
d. Sentinel Offenses	22
e. Vietnam Property	1

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3. Mapping and Intelligence (M&I)

a. Map Status and Distribution. Command depots issued 2,000,000 map sheets of all scales and received 2,600,000 map sheets from supporting depots. Authorized stockage level is 8,000,000 and the on-hand quantity at the end of the period was 9,500,000. The 25th Engineer Battalion (Base Topo) in Hawaii has completed the initial printing of the new 1:100,000 maps (series L 607). Total sheets in the series are eighty-nine. To date, seventy sheets have been received and distributed in-country. Several major units, which recently arrived in-country received their initial distribution of maps.

b. Mapping and Survey Operations. A project to extend horizontal survey control to gun positions in the Americal Division area was completed with twenty-two 3rd order points being established. A project for the Saigon-Bien Hoa area is nearing completion. The northern and southern DECCA antenna towers for air navigation are being resurveyed to improve their accuracy and, in turn, upgrade the DECCA lattice. A geodetic information brochure was prepared, published and distributed to notify interested activities where geodetic data may be obtained and to solicit their support to preserve the existing control monuments. A USARV mapping information brochure, giving the current map status of holdings in South Vietnam, was prepared, published, and distributed. Topographic companies printed 2,400,000 impressions of intelligence overprints and other types of special studies principally in support of CICV and the field forces. The first photo mosaics using the 1:10,000 scale cartographic aerial photography of the Saigon-Bien Hoa area were produced during the reporting period. Approximately 100 of these sheets will be produced during the next 90 ± 120 days. ENSURE item no. 140, a five color experimental electrostatic printer was received and installed in the 66th Engineer Company (Topo) (Corps). Printer is in limited operation but lacks adequate air conditioning. Multiplex mapping equipment has been received by 66th Engineer Company (Topo) (Corps) thus introducing a new capability to extend geodetic control for the artillery by photogrammetric means. Authority has been received from COMUSMACV to establish a low altitude cartographic aerial photographic capability using organic army aircraft or by contract to civil firms. Experiments are being conducted to determine the most feasible aircraft and camera combination. DA authority to activate a hydrographic survey team was received on 20 January, and on 21 January the first survey of about thirty kilometers was successfully made.

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c. Current Intelligence Projects. An interim study was prepared, published, and distributed, covering the location of construction materials and the availability of construction sites in the Delta region. A study of the technical aspects of VC Tunnel detection, construction and destruction was prepared and distributed (see inclosure 2). This study included a recommended form and a procedure for reporting tunnel data. Two interim studies on the use of lime for soil stabilization were prepared and distributed. Flood prediction centers in I and IV Corps Tactical Zones were closed due to the termination of the flood season and final reports are being prepared. LOC data continues to be up-dated.

4. Plans, Operations, and Training

a. Plans. During this period, the Plans Branch devoted a major portion of its efforts toward the development of an Engineer Staff organization that would insure adequate monitoring and direction of all aspects of the engineer effort in Vietnam.

(1) Standardization of Units. MTOEs were submited in compliance with a DA directed standardization program. The object of this program is to standardize all like engineering units in Vietnam. All company and larger sized units (over ninety-nine percent of the command) were included in the submission.

(2) In January, the civilianization program began with one construction battalion scheduled to civilianize ninety-nine military spaces.

b. Operations. The proportion of engineer effort engaged in operational support and LOC maintenance and upgrading continued to increase. At the beginning of the reporting period, less than forty-five percent of troop labor was devoted to operational activities. By the end of the period, this has risen to more than sixty-five percent, the remainder being committed to MCA funded base construction and a small percentage, generally less than two percent, to revolutionary development activities.

(1) LOC Maintenance and Upgrading. As operational support missions increased in relation to total engineer efforts, so does LOC maintenance and upgrading. Approximately thirty percent of available troop effort was devoted to deliberate LOC construction and maintenance. Emphasis has been on the upgrading of route QL-1 in the Phan Rang - Nha Trang - Tuy Hoa - Vung Ro, and Qui Nhon - Duc Pho Sections. MACV is coordinating the

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efforts of engineer troops and the OICC contractor. The paving of route QL-19 between Qui Nhon and An Khe has been completed. The portion, QL-19 between An Khe and Pleiku is expected to be completed within the next reporting period. The LOC effort was retarded by rain of the northeast monsoon in the Duc Pho - Qui Nhon - Cam Ranh Bay coastal areas. In the south, LOC rehabilitation is underway with the emphasis on routes QL-1, QL-4, QL-5, 15, 317, LTL8A and the Saigon Bypass. All together, 3,600 kilometers of road were maintained and 100 kilometers were paved. Contract funds in the amount of $2,900,000 were obligated for paving of National Highway QL-1, a portion of which has been completed. Road construction materials in the amount of $1,700,000 were purchased from contractors to support the troop effort. The FY69 program, prepared during this period, included $41,330,000 for contract paving and $9,300,000 for contractor furnished materials. The program provides for the paving of 367 miles of road by contract and 460 miles of road by troop effort.

(2) Land Clearing. The engineer land clearing teams (LCTs) continue to operate within the II and III CTZ. During this quarter, 13,600 acres of road clearing were accomplished. To date, over 53,700 acres of virgin jungle have been cleared plus 26,000 acres adjacent to our LOCs. The original contract for the two 97 ton Le Tourneau Tree Crushers expired on 31 Jan 68. Contract negotiations are underway for extending the contract to permit further field testing and evaluation of this equipment.

(3) VC Tunnels. Additional emphasis will be placed on the search, exploitation, and destruction or denial of VC tunnels by engineer units. The tunnel complexes are integral to the enemy's logistical system and their loss will have a disruptive effect on his operational potential.

(4) Operational Support. Units of the Command were tasked to provide support for most major tactical operations. The support requested by tactical commanders was provided in every case. Major tactical operations supported include:

a. Operation Kunai. The 27th LCT, operating in support of the 25th Infantry Division, cleared 11,750 acres in the fifty day period ending 9 November 1967.

b. Operation Atlanta. This operation began on 21 November, 1967 with the 27th LCT operating in the Iron Triangle area. The

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mission ended on 15 January 1968 after clearing 10,925 acres of jungle.

c. Operation Saratoga. This operation was also supported by the 27th LCT in the Iron Triangle area. Begining on 4 January 1968, 7,205 acres had been cleared by the end of the reporting period.

d. Operation Santa Fe. The 27th Engineer Battalion and the 86th LCT supported the 9th Infantry Division on this operation, which terminated on 5 January 1968. The mission included clearing along LTL2 and LTL25 and maintenance and repair of QL-1 and LTL22.

e. Operation Klamath Falls. This operation terminated on 15 January 1968 and was associated with operation Byrd and Rose. During these operations, the 14th Engineer Battalion constructed bunkers, helicopter revetments and pads, drainage facilities, and berms for POL facilities at LZ Betty in the vicinity of Phan Thiet. Other tasks included the construction of bunkers and observation towers at Fort John, minesweeping and maintenance of LOCs and access roads, and construction of protective berms for ammunition supply dumps.

f. Operation Enterprise. This operation was completed 21 January 1968. The 86th Engineer Battalion (C), in support of the 9th Infantry Division, constructed firing positions for 155mm howitzers, performed road grading and maintenance of QL-4, and constructed access roads to the fire support bases.

g. Operation Casey. This operation began on 22 January 1968. The 27th Engineer Battalion had the mission to grade and penecprime Minh Thanh Airfield in support of the 101st Airborne Division.

h. Operation Yellowstone. The 588th Engineer Battalion (C), in support of the 25th Infantry Division, is rehabilitating and upgrading Katum Airfield to a Type II C-130 capability with expanded parking areas. In addition, the battalion is maintaining LOCs in the divisions's AOR and has been engaged in the construction of emergency medical bunkers and fighting bunkers for the Special Forces Camp at Thien Ngon. The operation is nearing completion.

i. Operation Fargo. The 168th Engineer Battalion (C) continues to support the 11th Armored Cavalry Regiment by the construction of a FOC bunker, fighting bunker and gunpads, and land clearing adjacent to Route 13 in the An Loc - Loc Ninh area.

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j. Operation Mac Arthur. The 299th Engineer Battalion (C) has been supporting the 4th Infantry Division by performing road and bridge construction and maintenance on QL-14 and routes 511 and 572. The operation also includes the repair and maintenance of Dak To and Kontum airfields and their supporting facilities.

k. Operation Pershing. The 19th and 35th Engineer Battalions (C) are upgrading QL-1 from LZ Hammond to Duc Pho and rehabilitating TL-3A from QL-1 to LZ Pony. Repairs are being made on LZ English.

(1) Other operational support missions have included:

1. Airfield rehabilitation at Song Be.

2. Construction of firing points and support facil- at Song Be.

3. Upgrading of QL-19 east of An Khe in preparation for paving.

4. Rehabilitation and upgrading of An Thoi Airfield on Phu Quoc Island to Class III, C-130.

5. Minimum Essential Requirements (MER) for incoming aviation units.

6. Upgrading of Ban Blech and Polei Kleng Airfields.

c. Safety. During the reporting period the command suffered ten fatalities as the result of accidents. Seven deaths were caused by motor vehicle and heavy equipment accidents. One was the result of walking into the blade of a helicopter. One resulted from the improper use of gasoline, and one was caused by a gunshot. Numerous flyers, posters and accident prevention material have been forwarded to each brigade for further distribution. In addition, each brigade received three safe-driving films for use within their command.

d. Revolutionary Development Support. This program is expanding and improving. Cooperation between US Military, US Agencies, and the RVN Agencies is improving significantly, resulting in increased local participation. The following projects were particularly successful: The Thai Hoa Hamlet School and House of Charity Orphanage projects

of the 69th Engineer Battalion; the extension to an aid station in Tien Kim, supervised by the 93rd Engineer Battalion; and the construction of the Di An Pre-School Nursery by the 168th Engineer Battalion. During the Christmas holidays almost every unit of the 18th Engineer Brigade sponsored entertainment for children and the distribution of gifts. Many orphanages, schools and villages were the recipients of gifts during this past holiday season.

e. Vertical Construction. The reduction in construction requirements, resulting from the USARV Ad Hoc Base Development Study Board recommendations, has had the effect of reducing the vertical construction back log. The amount of vertical effort in MCA construction continued to decrease as operational support and LOC construction expanded.

f. Water Well Drilling.

1. During the period, six wells were completed, two by army drilling detachments, and four by contract. Water point construction proceeded at an accelerated pace due to the receipt of water storage tanks.

2. A recent policy change limiting cantonment construction to "Field" standard has resulted in a revision downward of established water and sewage criteria. Consequently, ninety percent of the water distributation and water-borne sewage systems programed for construction in RVN has been cancelled. The requirement for water point construction has been reduced by approximately thirty facilities.

3. One problem affecting most cantonment in RVN is an inadequate water haul capacity. Due to the current limitations on the construction of water distribution systems, this problem can only be overcome by the construction of additional water points (up to fifty gallons per man, per day, limit) and by obtaining additional water tankers.

g. Quarry Operations.

1. Eighteen D-9 crawler-tractors have been received and assigned to quarries throughout the country. It is expected that their presence will result in a significant improvement in rock production during the next quarter. The total quantity of crushed rock produced each week is 65,000 cubic yards. This rate approximates that reported last quarter, despite the monsoon rains in the north.

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2. The use of commercial dynamite and delay blasting caps is being studied. It is believed that this system will reduce the amount of secondary blasting required and thus, increase the efficency of quarry and crusher operations. A test program will be implemented upon receipt of the dynamite and caps. The civilian technical advisors continue to make improvements in operations in their work with the quarry equipment supervisors and operators.

5. Construction Management. a. Status of Funds: FY65 MCA programs. Action has been initiated by MACDC to close out the FY65 Regular and FY65 Supplemental Military Construction Programs. Due to the accelerated build up beginning in 1965, administration lagged behind construction. Balancing of the program consists of associating troop-reported constructed facilities with MACV authorized scope and funds.

b. Design Activities

1. Design standardization effort continued during this quarter through participation in MACV standard facility development, collection of brigade recommended designs, and in-house design work. Standard permanent and semi-permanent bridge designs, have been completed and dispatched to GVN and subordinate units for final review. Bridge and hangar lighting standards have been initiated. Standardization of facility interior electrical and lighting systems had been completed, and the resulting changes in material forecasts are under development. Investigation of concrete block construction has been completed to include the determination that block can be used for mortar protection in lieu of sandbags for billets. The construction of a tropicalized block building was directed. A USARV coordinated review of aircraft revetments resulted in changed designs incorporating improvements provided by the Waterways Experiment Station. Evaluations of use of clay-lime soil stabilization and soil control vegetation are nearing completion. Brigade design requirements continue to be coordinated with the service contractor and Officer in Charge of Construction, RVN. Services of the engineering contractor have been improved through increased use by subordinate units. Finally, 118 construction drawings and 218 charts and graphs were completed.

2. Security lighting standards were reviewed with engineer units and USARV Engineering Staff sections and were forwarded to MACV with recommendation for publishing as a MACV standard in late January 1968. Low voltage standards will provide economical and pre-engineered systems. Standard incorporated bills of material based on

common stock-piled items will prevent waste due to excessive and incorrect usage of materials. On 6 January 1968, high voltage specifications for distribution systems were provided to engineer line construction teams and to the Vinnell Corporation. Designs include bills of material based on recent CONUS procurment and will further standardiz distribution system construction by engineer teams and the Vinnel Corporation. The high safety standards of the civilian and military electrical profession have been reflected in all standards and specifications published.

c. Master Planning

1 During the reporting period, the Command revised and published a new Letter of Implementing Instructions (LOI) requiring the preparation and submission of Master Plans for each installation by 30 Jaunary 1968. This revised LOI provides for implementation of the "hotel" concept of providing billets for that portion of forces that require billets in the base camp. Emphasis was placed on requesting the minimum construction required to accomplish the base mission rather than arbitrary planning to construct to MACV criteria. Master Plans will be reviewed as they are received and an errata sheet published providing general and specific comments as to the preparatiion of the plan, and its conformance with established policy, criteria and standards. USARV Reg 405-3 was revised to incorporate instructions for updating ADP printout versions of Master Plans on an annual basis.

2. A new recommended standard of cantonment construction for US Army and Free World Military Forces bases was submitted to COMUSMACV.

3. The Master Planning Branch continued to participate as members of the USARV Ad Hoc Base Development Study Group, providing technical assistance, data input, and on-site review of selected bases. The Command continued to provide assistance to Army bases in the initial stages of development in the I, II, and IV CTZ. Technical assistance was also provided and staff visits made to all Free World Military Assistance Forces bases during the reporting period.

d. Project Directives

1. An Amendment to Contract DA-23-195-AMC-C0772(T) was signed on 9 November 1967 by representatives of the Vinnell Corporation and the US Army Procurment Agency Vietnam. Amendment

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A009 requires the Vinnell Corporation to construct power plants and distribution systems at twelve Army bases. Command directives were forwarded to the 18th and 20th Engineer Brigades for site preparation at these twelve locations. Command directives were also issued to the brigades for the construction of power plants and distribution systems at Can Tho, Pleiku, and Lai Khe and for the completion of the RMK initiated distribution system at An Khe. These projects are to be accomplished with the newly formed, high voltage generator installation and line construction teams.

2. A request for the determination of construction priorities was forwarded to installation coordinators 18 December 1967, after the preparation of current base asset and deficiency list. The priority lists are being reviewed on receipt, for approval by USARV, and will be returned as approved. Copies will be forwarded through Engineer channels to aid planning for future construction, and will aid the USAECV(P) Engineer in funding and direction of projects within each base.

3. A construction directive update program was initiated 18 December 1967 to revise scope and funds on all MCA construction directives. As USARV develops approved construction plans for each base, current directives are reviewed to determine if directed scopes and funds should be adjusted. All proposed changes are forwarded through Engineer channels for a field check. Upon ap roval of the proposed changes, necessary funds will be obtained and all current directives will be revised to provide necessary scope and funds.

4. Engineer Command Directives amounting to $5,674,000 were issued to engineer troop units for MCA construction. O&MA directives totaling $556,000 were issued.

e. Construction Reporting

Coordination with the Officer in Charge of Construction, RVN; and MACDC has resulted in standardization of reporting format. This will increase the accuracy of reports submitted to DA and OSD. In addition, costing errors have been discovered and corrected. These include Government Furnished Materials (GFM) supplied to the contractor and work performed by Vinnell.

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6. Logistics

a. General:

1. The availability of materials to support troop construction continued to improve during the past quarter as bulk purchases initiated last spring and summer began arriving in-country. The number of special priority actions decreased and depot requirements became more predictable.

2. Conditions should continue to improve since major cantonment construction is leveling off and material requirements for vertical work should decrease. Since LOC construction and rehabilitation is expanding, increased requirements for asphalt products and bridging materials is expected. Large purchases of sand will also continue.

3. A continuing problem is the difficulty to identify special requirements in sufficient time to enable materials to be brought into country on a routine basis. Procurement lead times and transportation delays are the major causes for long order and shipping times presently experienced. Projects continue to be delayed for lack of special items which require procurement action.

b. Supply:

The equipment posture for the Command has continued to improve throughout the reporting period; however, significant equipment shortages are worthy of note:

ITEM	AUTH	O/H
(1) Boat, Bridge Erection, 27'	37	22
(2) Compressor, Air, 250 CFM	209	129
(3) Crane - Shovel, 12½ & Under	53	23
(4) Distributor, Water	108	64
(5) Ditching Maching	65	43
(6) Grader, Mtzd	269	216

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ITEM	AUTH	O/H
(7) Loader, Scoop, 2½ CY	334	252
(8) Mixer, Concrete	205	129
(9) Rollers, Mtzd	108	56
(10) Semi-trailer Lowbed	708	611
(11) Motor, Outboard	72	52
(12) Truck, Tractor 10 Ton	614	48

The Engineer Command sponsored the activation of a new Engineer Battalion in the Americal Division. The Commanding General, Americal Division desired that the battalion become operational by 15 January 1968. To the maximum extent possible, equipment was provided from assets within the Command. Additional equipment was obtained from in-country assets to attain an operational status. Equipment not available in-country was placed on requisition. Difficulties were encountered in the transhipment of equipment to the battalion location; however priority shipment was accomplished to meet the deadline.

c. Maintenance:

1. Since 1 November 1967, the equipment density within the Engineer Command has increased from approximately 18,000 major end items to slightly over 18,100. Included in the increase density are eighteen Caterpiller Model D9G crawler-tractors purchased under the ENSURE Program for use in quarry operations.

2. Although the equipment density increased during the period, the average number of items deadlined decreased from 797 to 794 per day.

3. Factors contributing to the improved deadline rate are Command emphasis on preventative maintenance and the assistance provided to Commanders through the newly formed Command Readiness Assistance Team. Since the first week in November, the team has been visiting battalions and separate companies identifying problem areas and providing assistance to correct maintenance and readiness deficiencies.

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7. Inspector General Activities.

a. The Inspector General conducted twelve annual general inspections and four special readiness inspections. The annual general inspections were designed to evaluate mission accomplishments while not interfering with tactical operations of the inspected unit. Special readiness inspections were follow-up inspections of selected units which had recently been deployed to Vietnam.

b. Units inspected were performing their mission in an effective manner, considering available resources and existing conditions.

8. Information Activities.

a. The 26th Public Information Detachment (Field Service) attached to the Engineer Command, became full strength with the assignment of 1LT Louis J. Van Mol Jr. as the unit's press officer.

b. A three man team consisting of a photographer, writer and tape recorder operator from the USARV information office toured each of the six groups of the Command to produce a photo article for use by the Army News Features publication. This publication contains both pictures and editorial articles and is distributed free of charge to any military information office requesting the publication. Stories and pictures which appear in this publication inform other units of Army activities and provide additional copies for various unit newspapers.

c. The Army Big Picture production of They Clear the Way was completed in mid December and should appear in color on Stateside television in February or March of 1968.

d. Revolutionary Development work in the northern edge of the Delta provided news interest to civilian news media. John Coats, from CBS, contacted the Command for permission and assistance in visiting the 159th Engineer Group project site in Rach Kien. Additional civilian media have also expressed a desire to visit this project site, but as of this report, they have not set a date to visit the area. We are remaining in contact with both the USARV information office and the Joint US Public Affairs Office (JUSPAO) in Saigon to keep informed of the latest desires of news media concerning the possible visits to the Revolutionary Development sites.

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e. JUSPAO informed this Command that several civilian news media were interested in land clearing projects and had planned to visit infantry divisions to view the projects. The JUSPAO office was informed that the Engineer Command units do the vast majority of land clearing work and the reporters should be directed to the engineer units. The latest word received as of this report was that the civilians will be directed to the Engineer Command information office by JUSPAO for land clearing coverage.

f. The engineer combat artist team completed work on the engineer art brochure and delivered it to Dai Nippon Printing Co. LTD, Tokyo, Japan for printing. The completed work was distributed to all of the Engineer Command units in late December.

g. The remaining two combat artist from the original engineer team received a project to decorate a 67-foot blastwall with the names of Medal of Honor winners. This project has been completed and turned over to the 46th Engineer Battalion for installation on the concrete wall.

Section 2, Part 1, Lessons Learned.

1. Operations.

a. ITEM: Well drilling detachment activity.

DISCUSSION: A review of past detachment activity by seven units indicates a need for revision to the organization of these units to improve their performance. During 141 drilling months the detachments have drilled thirty-four holes from which only fourteen wells were developed. Problems encountered in the past can basically again be attributed to a lack of training and supporting equipment, materials, and supplies.

OBSERVATION: A study with recommendations for re-organization of these units is being prepared.

2. Intelligence.

a. ITEM: M1A1 Antitank Mine.

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DISCUSSION: A number of subordinate units have called attention to the discovery of US model M1A1 Antitank Mines of the World War II era. Investigation by intelligence and EOD personnel reveals that, although the possibility exists of some of these mines remaining from World War II stockage for the Chinese Army or stores captured from US Forces during the early phases of the Korean War, the vast majority of those mines identified as the M1A1 are in fact, a Chicom antitank mine nearly identical in appearance to the US item. Both mines are OD in color, three inches in height, eight inches in diameter and weigh approximately 11.5 pounds, with a TNT filler. The Chicom mines are marked in an identical manner to the US M1A1 mine, to include stenciling "Mine, Antitank, M1A1" and ordnance lot numbers. Only minor differences exist in the design of the pressure plate and the size of the fuze well. The VC employ this item as both a pressure and a command detonated mine, often with a booster charge of TNT.

OBSERVATION: All personnel should be made aware of the widespread employment of the Chicom Antitank mine, similar in appearance to the World War II M1A1 US Antitank mine.

3. Logistics.

a. ITEM: Excessive deadline time of MC-8, EDME.

DISCUSSION: Since the last reporting period, the deadline rate for model MC-8 Electronics Distance Measuring Equipment (EDME) (FSN6675-088-3652) has deteriorated further and now is seventy five percent. Units with this item have worked closely with direct and general support maintenance units of the 1st Logistical Command to solve this problem but the solution appears to be beyond their capability.

OBSERVATION: The capability of survey units to perform their mission is seriously hampered by the lack of this equipment. The enemy situation will not permit reversion to the old taping method, as it is too time consuming and inaccurate. A survey instrument must be issued to the survey units as soon as possible that will permit them to conduct electronic traverses. The item should be simple to operate, easy to repair, reliable, have an all-weather capability and not be subject to breakdown due to normal handling and transportation.

b. ITEM: Need for lightweight portable survey towers.

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SUBJECT: Operational Report-Lessons Learned (RCS CSFOR-65) for Quarterly Period Ending 31 January 1968

DISCUSSION: The peculiar land form in the area south of Saigon (elevations seldom vary more than three meters) create a need for survey towers so that points can be intervisible. The standard issue aluminum version of the Bilby Tower (FSN 5445-267-0074) requires too long to erect and dismantle. The enemy situation will not permit occupation of a point for several days, which are now required when a Bilby type tower is used.

OBSERVATION: A requirement exist for a tower that is lightweight, portable, preassembled or capable of rapid erection, that can be helicopter lifted to the point desired and rapidly emplaced. This type tower is needed to supplement the Bilby type aluminum tower now in the Army inventory.

c. ITEM: In-country Transportation Delays.

DISCUSSION: It is often necessary to trans-ship construction materials between depot storage areas to meet local construction needs. Units are also required to ship construction materials through transportation channels to relatively inaccessable project sites, particularly in the Delta. Due to heavy transportation backlogs, shipments are sometimes delayed for months, slowing construction and even causing work stopages. In committing materials to transportation, units have little idea as to how long it will take to move the material to their destination. The extent of the delays vary by location according to the size of the backlog and the nature and priority of the shipment.

OBSERVATION: This condition could be somewhat alleviated if periodic shipping status were provided to units on a local basis, giving the current transportation backlog and estimated delays. This would provide units with a planning factor which would be considered when assigning priorities of work and committing personnel and equipment.

d. ITEM: Increased Production from Troop Operated Quarries.

DISCUSSION: The engineer Command has over forty each crushing and screening plants ranging in size from 75 TPH to 225 TPH. Troop units are having considerable difficulties in reaching the rated production capacity of the crushers on a sustained basis.

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OBSERVATION: In an effort to improve the production posture of Engineer Command rock quarries; civilian technicians skilled in efficient rock production techniques have been assigned to the Engineer Groups on the basis of one per engineer group. These personnel have made a notable contribution in advising on the operating methods best suited for the conditions being experienced in Vietnam.

e. ITEM: Incomplete parts provisioning for new equipment.

DISCUSSION: One hundred 20 ton Euclid dump trucks, model 99FD, were procured for use in troop quarry operations in Vietnam. In order to provide an immediate source of repair parts, USAMECOM purchased an estimated one year supply of parts from the manufacturer. The tires used on the 20 ton dump truck are managed by USATAC and not by USAMECOM. This has resulted in the tires not being purchased with the repair parts. The impact has been that several trucks have been declined for tires pending receipt of 200 front and 200 rear tires purchased by USATAC. Tires are being obtained through Red Ball action.

OBSERVATION: Provisioning of new equipment should be coordinated to ensure all required repair parts are available to support the equipment upon issue to troop units.

f. ITEM: Use of Command Readiness Assistance Teams.

DISCUSSION: Due to the rotational policy in Vietnam and the all out effort to "get the job done," many regulations and policies pertaining to supply and maintenance become overlooked causing an eventual reduction in material readiness.

OBSERVATION: A Readiness Assistance Team composed of personnel who are knowledgeable in maintenance, repair parts, and supply operations can provide the needed help to a commander by visiting units for the purpose of pointing out readiness deficiencies and assisting in making on-the-spot corrections.

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AVCC-PLC
SUBJECT: Operational Report-Lessons Learned (RCS CSFOR-65) for Quarterly Period Ending 31 January 1968

Section 2, Part II: Recommendations.

1. Logistics.

a. Reference Section 2, Part 1, para 3a. Recommendations: First, the present Electronic Distance Measuring Device, AN/GSG-5, (FSN 6675-088-3652) should be declared obsolete and the item be removed from the supply system. Second, the Army should obtain a new EDME such as the AN/GSG-6 Telurometer that is more reliable, and easier to maintain and operate.

b. Reference Section 2, Part 1, para 3b. Recommend that the Army acquire and issue a lightweight portable survey tower for field use.

C. M. Duke

2 Incl
~~1. Troop Unit Listing~~ Withdrawn, Hqs, DA
2. VC Tunnel Study

C. M. DUKE
Major General, USA
Commanding

This marking is cancelled when separated from the material bearing a protective marking.

GPOP-DT (30 Mar 68) 2d Ind
SUBJECT: Operational Report of HQ, US Army Engr Comd Vn (Prov) for Period Ending 31 January 1968, RCS CSFOR-65 (R1)

HQ, US Army, Pacific, APO San Francisco 96558 26 APR 1968

TO: Assistant Chief of Staff for Force Development, Department of the Army, Washington, D. C. 20310

This headquarters has evaluated subject report and forwarding indorsement and concurs in the report as indorsed.

FOR THE COMMANDER IN CHIEF:

C.L. SHORTT
CPT, AGC
Asst AG

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AVHGC-DST (30 Mar 68) 1st Ind (FOUO) CPT Arnold/twl/LBN 4485
SUBJECT: Operational Report-Lessons Learned (RCS CSFOR-65) for Quarterly Period Ending 31 January 1968

HEADQUARTERS, US ARMY VIETNAM, APO San Francisco 96375 11 APR 1968

TO: Commander in Chief, United States Army, Pacific, ATTN: GPOP-DT, APO 96558

Assistant Chief of Staff for Force Development, Department of the Army, Washington, D. C. 20310

1. This headquarters has reviewed the Operational Report-Lessons Learned for the quarterly period ending 31 January 1968 from Headquarters, United States Army Engineer Command Vietnam (Provisional).

2. Pertinent comments follow:

a. Reference item concerning excessive deadline time of MC-8, EDME, page 18, paragraph 3a; and page 21, paragraph 1a: Concur. In-country maintenance personnel are well trained in repair of MC-8, but repairable modules can be repaired only in CONUS. To save time, unserviceable sets are being sent to CONUS for repair and return. An attempt is being made to obtain additional sets to provide a maintenance float level. A message has been sent to USAMC requesting expedited shipment of an improved Telurometer model which is supposed to be more suitable for the adverse operating conditions in RVN. Eighteen of these new devices are now scheduled to arrive in early June.

b. Reference item concerning need for lightweight portable survey towers, page 18, paragraph 3b; and page 21, paragraph 1b. Five mobile lightweight 50-foot observation towers have been purchased through ENSURE procedures for use in RVN. Recommend the Engineer Command determine if this type tower will meet its requirement. If so, additional towers may be purchased. If not, recommend the Engineer Command consider using ENSURE procedures as outlined in USARV Regulation 705-2 as a method for fulfilling its requirement for a survey tower.

c. Reference item concerning in-country transportation delays, page 19, paragraph 3c: Concur. Construction materials usually have low priorities

PROTECTIVE MARKINGS
CANCELLED 10 APRIL 1969

AVHGC-DST (30 Mar 68) 1st Ind
SUBJECT: Operational Report-Lessons Learned (RCS CSFOR-65) for Quarterly Period Ending 31 January 1968

for movement. In insecure areas these materials are frequently delayed. TMA has been contacted and requested to advise shipper of the requested information.

d. Reference item concerning incomplete parts provisioning for new equipment, page 20, paragraph 3e: Concur. The provisioning of repair parts for new equipment is the responsibility of the acquiring activity. Therefore, it is recommended that the problem discussed be referred to the USAMC project officer for solution.

3. A copy of this indorsement will be furnished to the reporting unit through channels.

FOR THE COMMANDER:

CHARLES A. BYRD
Major, AGC
Assistant Adjutant General

Copy furnished:
HQ USAECV (P)

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USAECVP

VC TUNNEL STUDY

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DEPARTMENT OF THE ARMY
UNITED STATES ARMY ENGINEER COMMAND VIETNAM (PROV)
APO 96491

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AVCC-MI 1 December 1967

PROCEDURES FOR REPORTING VC TUNNELS

I PURPOSE

The purpose of this brochure is to provide guidance in the classification and reporting of VC Tunnels. Use of the classification and reporting outlined will permit effective evaluation of VC Tunneling techniques and tactics.

II GENERAL:

A. Numerous tactical and technical advantages may be gained by thorough discovery, exploration and destruction of extensive, well concealed tunnel networks constructed by VC Guerrilla forces. Denying the VC future use of discovered tunnels restricts his ability to conceal his actual strength and to strike suddenly from hidden positions. Tunnel denial also reduces the protection from aerial reconnaissance, observation and artillery.

B. Considerable research effort has been and is being conducted to determine detectable indicators in the immediate area of VC Tunnels. Attempts have been made to correlate VC Tunnel locations with specific soil type, vegetation, terrain, proximity to villages, water sources and to "guerrilla set piece battle field". These attempts have been hindered due to inadequate reporting of information by discovering units. Repetitious reporting of tunnels at the same coordinates indicate the reuse of partically destroyed tunnels.

III TUNNEL CLASSIFICATION:

A. Small Tunnel: Squad size or up to ten men, roof of tunnel is 2 feet or less from surface; tunnel length is less than 100 feet, 1-2 feet wide, less than 3 feet high, usually one entrance and one exit, usually no branch tunnels, the end of the tunnel may have one small room about 5x5x3' or the tunnel hallway may be widened for sleeping and eating area. Small tunnels are usually close to a village and may be placed under a hootch, bunker or fighting hole. Wells are often used for main entrances.

B. Ambush Tunnel: Usually small, 3-5 men, situated close to a path, trail or route, small entrance, may have no exit, may have a small room or enlargement of tunnel hallway, usually crude and near surface, about 10-20 feet in length.

C. Safe Hide Tunnel: Usually one long main tunnel that is constructed in a staircase manner, with trap doors and sharp turns. Tunnel height and width will vary from very small to large. May have one large room, and generally four or five entrances and exits. Usually found at a greater distance from villages than medium tunnels and generally close to infiltration routes.

D. River Bank Tunnel: Usually accessible via below water entrance only. Often contains only one small room, but may have rooms for rice and weapons storage and squad size living quarters. In some cases entrance may be gained at very low tide. Often used by VC to hide documents and tax records. Normally an exit is not constructed, however a few have been discovered with one exit above the water line and carefully camouflaged to be used in emergency only. 32

E. Medium Tunnel: Up to company size. No limit in length, 2-2½ feet wide, 3-5 feet high, one or more branch tunnels, two or more large rooms about 10x8x5', minimum of three entrances and exits, may incorporate trap doors or sharp turns to decrease the affect of gas penetration or explosive destruction. Roof of tunnel 2-5 feet below ground surface.

F. Tunnel Complex: May be up to 45 feet deep with more than one level. Possibly 4 or 5 levels. May incorporate air locks and trap doors, and will have numerous rooms 12x12x6' or larger, large rooms often found behind false walls consisting of bamboo plastered with mud. Rice, weapons and ammunition are usually found in large quantities. May have large hospital, mess hall or sleeping rooms. May have lights and communications lines. Will have numerous entrances and exits. Found on higher ground in generally unpopulated areas.

IV REPORTING PROCEDURE

A. Upon initial discovery of a significant tunnel complex, the AC/S MkI USAECV(P), APO 96491 (Phone Long Binh 4173/4109) should be notified. This will enable the command to provide technical assistance in detailed reporting and destruction of the tunnel.

B. Attached as inclosure 1 is a report form to be used in reporting all tunnels. Items noted by an asterisk are considered to be the minimum essential information. When the tactical situation permits, the forms should be completed and the following also included: (See examples at Inclosure 2).

1. Sketch of trace showing asimuths, lengths and location of rooms.

2. Diagram of tunnel indicating dimensions of entrances, exits, hallways and rooms wherever possible.

3. Sketch map showing location of the tunnel and terrain features such as streams, vegetation, hills, trails and roads. Location of other tunnels or fortifications should also be indicated.

4. Soil samples of 5-10 lbs each should be obtained from the floor of each level for transport to the 579th Engineer Detachment (Terrain), USAECV(P), APO 96491 located within the 20th Engineer Brigade area at Bien Hoa, Air Base. Mark each sample with the location from which taken.

5. Forms and sketches should be neatly printed with dark pencil or ink to permit Zerox duplication.

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VC TUNNEL REPORT

TO: USAECV(P)
APO 96491
ATTN: AC/S M&I

* Unit Reporting	* Date
* Location (8 digit coordinates)	Province

* Date Discovered	* Unit Discovering	* How Discovered

* Type Tunnel

	Small	Ambush	River Bank	Safe Hide	Medium	Complex

Distance and direction from nearest:

Village Road Water Source

Entrances:

Number How Disguised

Depth of Tunnel	Length of Tunnel	Depth of Water Table

Describe:

Terrain

Vegetation

Soil Type

Items Found

Rice (Tons)

Ammunition

Weapons (by type)

Other (specify)

* Destruction:

Method

Quantity Used

Estimated Percentage Destroyed

Remarks

Person to contact for additional information

Person completing this report:

(* indicates minimum essential information)

USAECV(P) FORM 96 (29 November 1967)

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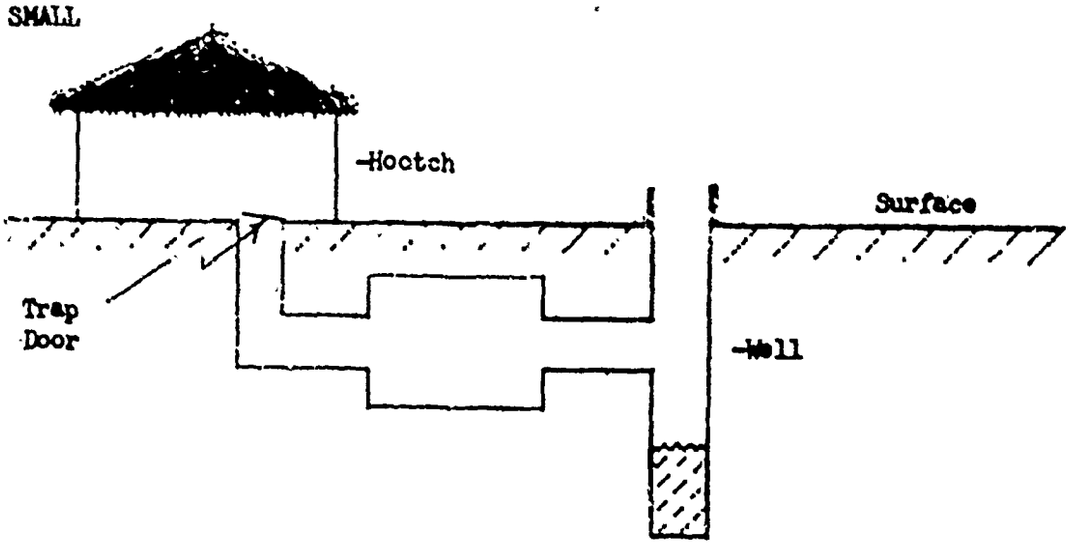
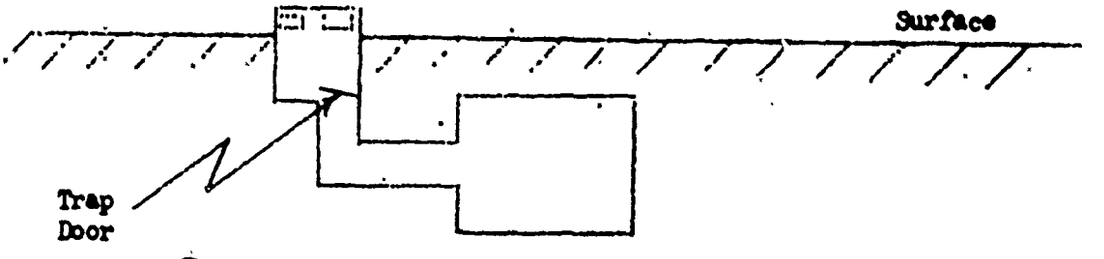
SAMPLE DIAGRAMS OF VC TUNNELS

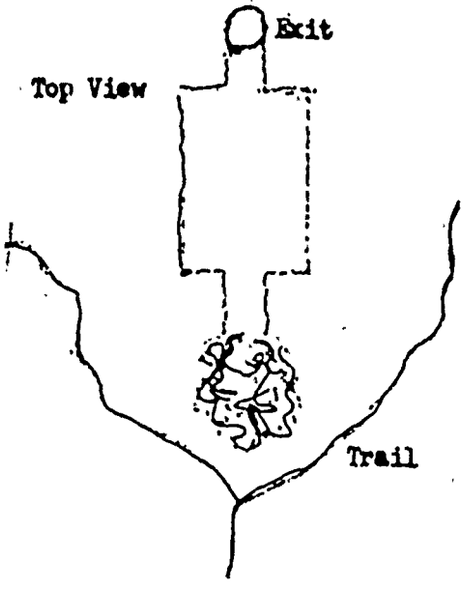
1. SMALL



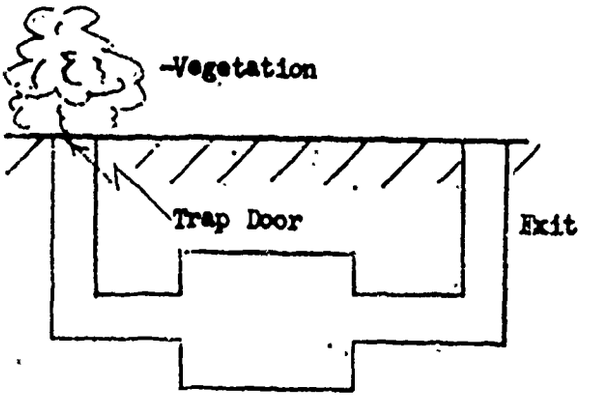
2. AMBUSH

Bunker or Fighting Hole

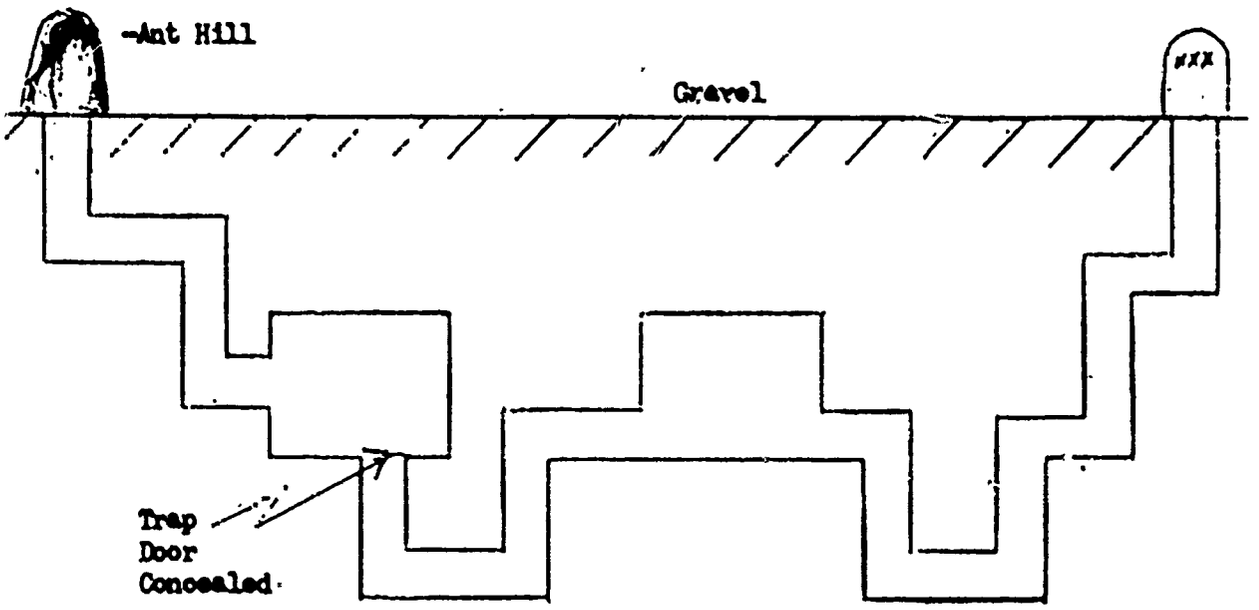




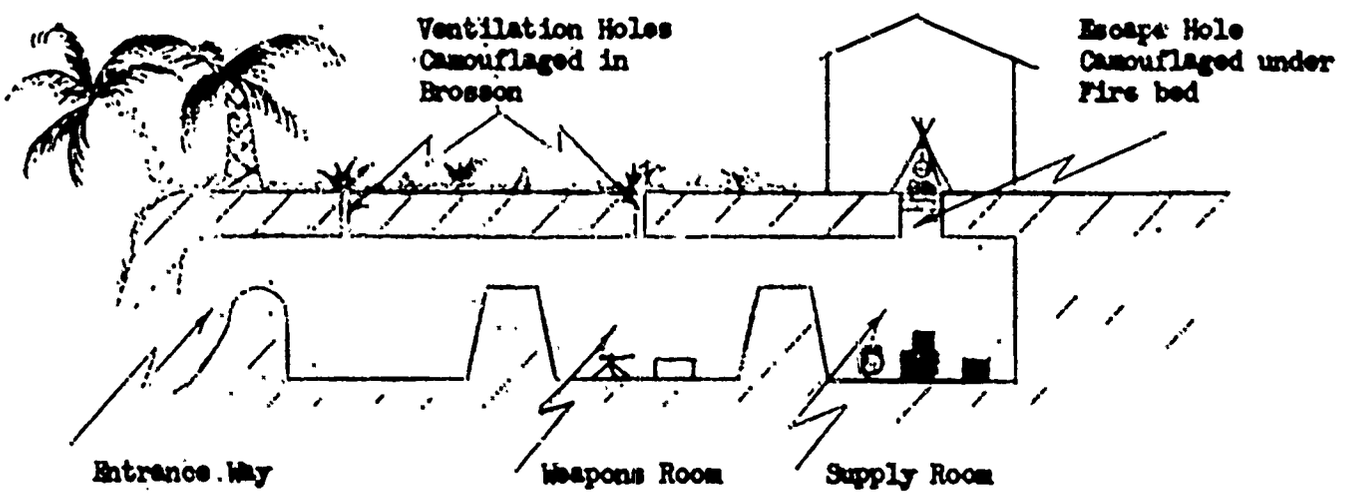
Side View



3. SAFE HIDE

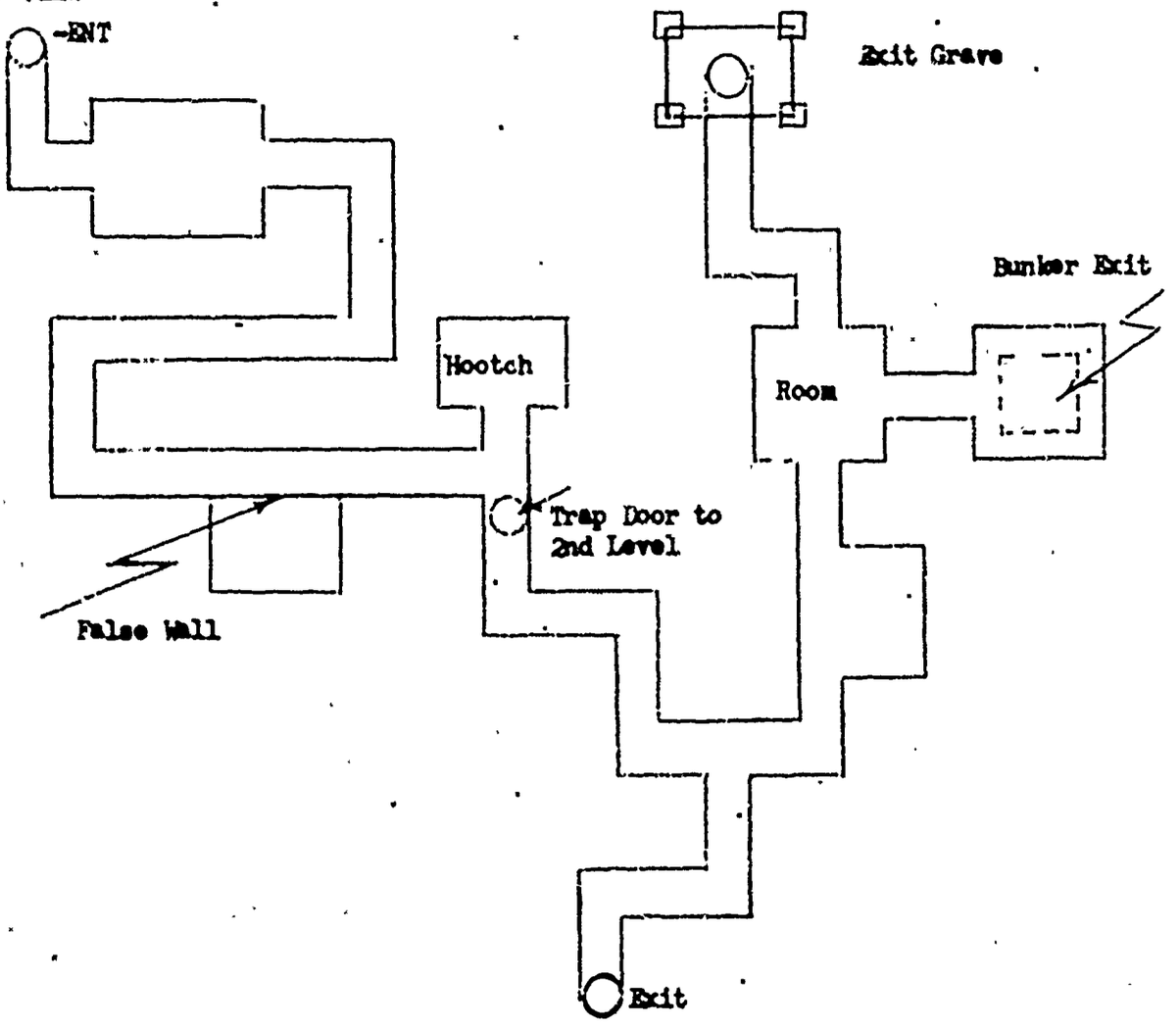


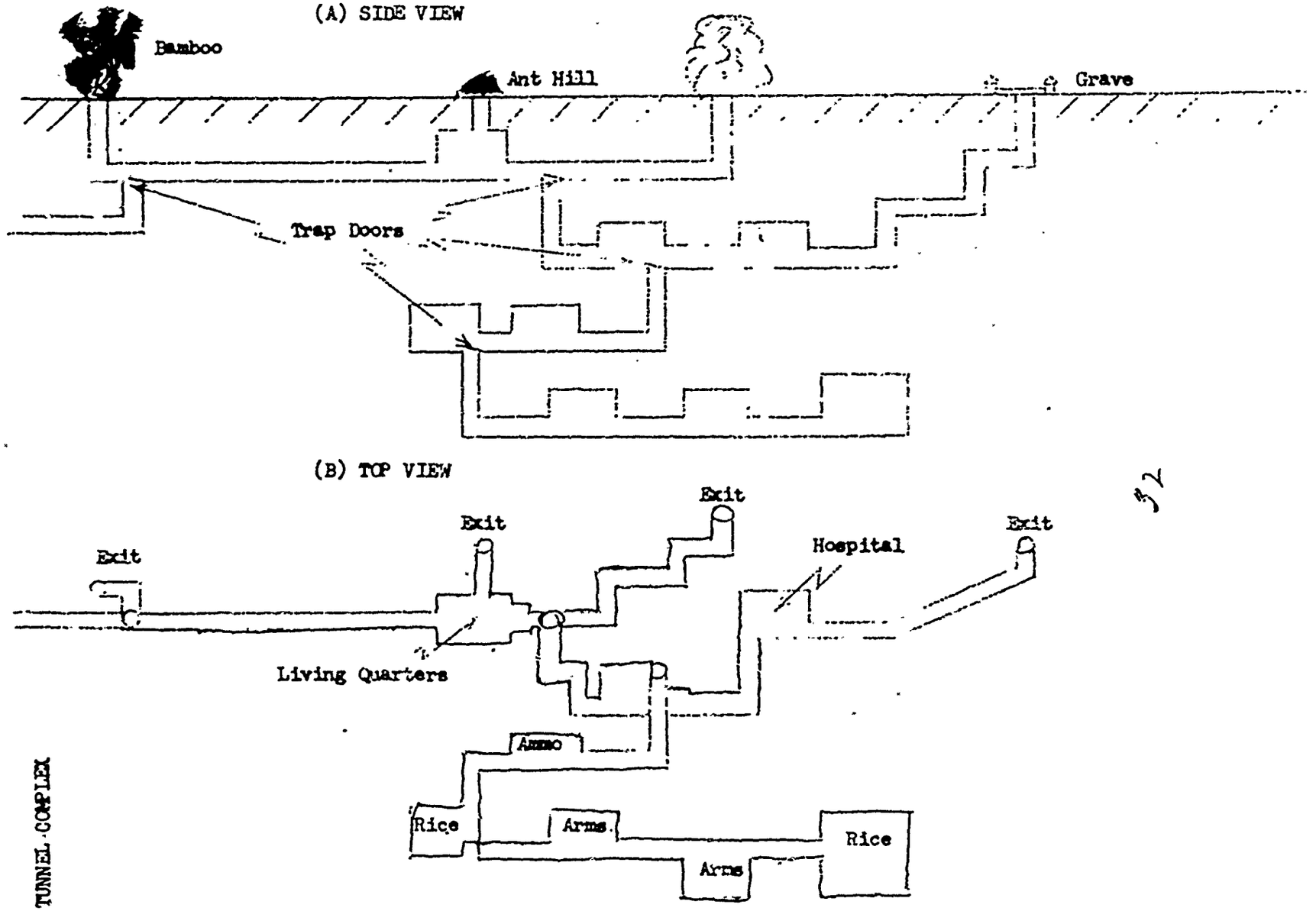
4. RIVER BANK TUNNEL



5. MEDIUM TUNNEL

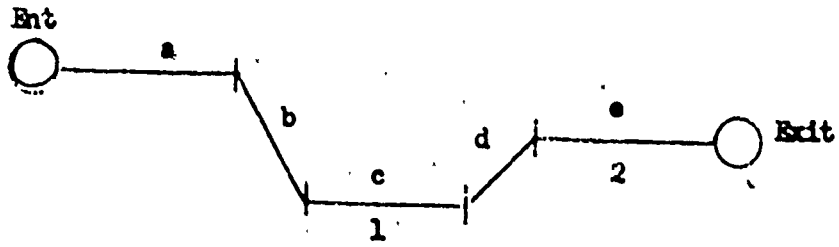
"TOP VIEW"





6. TUNNEL COMPLEX

SAMPLE TRACE SKETCH



SECTION	DIRECTION (Compass Bearings)	LENGTH
a	90°	20 meters
b	120°	15 meters
c	90°	18 meters
d	45°	10 meters
e	90°	20 meters

ROOM NUMBER	LXWXH (FT)	CACHE
1	8x6x5	Arms
2	10x10x10	Rice

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